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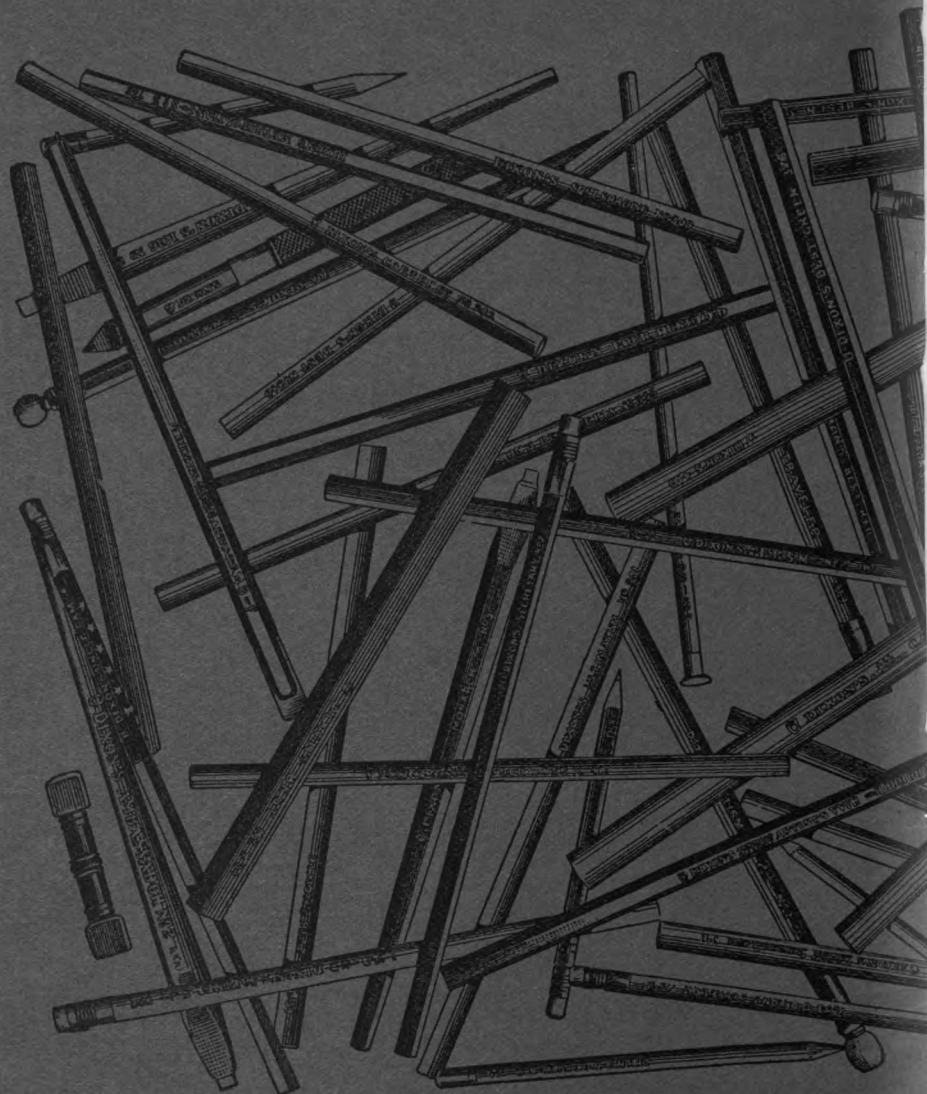
**UNIVERSITY OF
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EDUCATION**

FOR BOYS AND GIRLS OF ALL AGES

PENCIL

GEOGRAPHY

JOSEPH DIXON CRUCIBLE CO.
JERSEY CITY N.J. U.S.A.



PENCIL
GEOGRAPHY

DESIGNED FOR
BOYS AND GIRLS OF ALL AGES

FOURTH EDITION

ISSUED BY THE
JOSEPH DIXON CRUCIBLE CO
JERSEY CITY N. J.
U. S. A.

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THE WESTERN HEMISPHERE
WHERE
DIXON'S PENCILS ARE MADE



THE EARTH IS ROUND LIKE A BALL
OR ORANGE AND
DIXON'S PENCILS
ARE 'ROUND EVERYWHERE ON IT.

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Education
July



Question. Of what does Pencil Geography treat?

Answer. Pencil Geography treats first of the materials out of which Dixon's American Graphite Pencils are made; second, where and how these materials are obtained; and third, the process of manufacturing these materials into pencils.

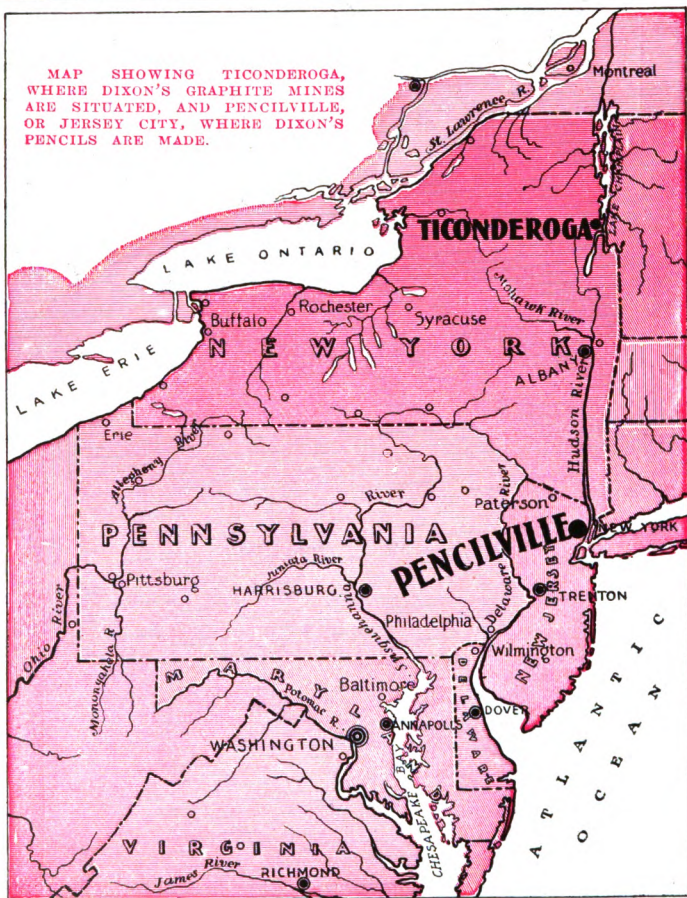
Q. Of what does a pencil consist?

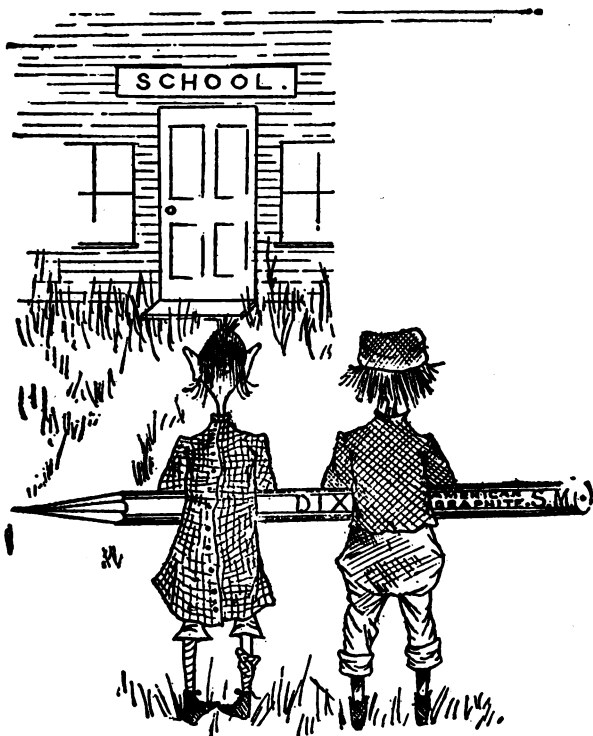
A. It consists of two parts: the "lead" and the cedar case.

Q. Of what is the "lead" in all pencils composed?

A. The "lead" in all pencils (except colored leads) is composed of graphite mixed with clay.

MAP SHOWING TICONDEROGA,
WHERE DIXON'S GRAPHITE MINES
ARE SITUATED, AND PENCILVILLE,
OR JERSEY CITY, WHERE DIXON'S
PENCILS ARE MADE.





Q. Why are Dixon's Pencils used so extensively in schools?

A. Because they are accurately made and carefully graded for all kinds of educational work.

Q. What is Graphite?

A. Graphite is a form of carbon, in the same family as charcoal and the diamond, and closely allied to coal.

Q. What other names are sometimes applied to this product?

A. Plumbago and blacklead.

Q. Why is clay used with Graphite?

A. It is used to bind the materials together and to assist in determining the degree of hardness.

Q. What kind of clay is mixed with Graphite?

A. A very fine grade of china and other clay is mixed with the Graphite.

Q. What sort of wood is universally used in pencil making at the present time?

A. Cedar.

Q. Where do the Joseph Dixon Crucible Company obtain their graphite?

A. From their celebrated mines at Ticonderoga, New York.

Q. How is graphite found?

A. Graphite is found generally mixed with quartz, silica and mica, and it is first necessary to pulverize the rock by a process similar to that used in silver mines, and purify the product.

Q. What is the next step?

A. It is then strained through very fine silk sieves which re-

move all coarse particles, and it is then ready to be mixed with the clay.

Q. Where is the clay obtained?

A. From Austria and Bohemia.

Q. What are the peculiarities of this clay?

A. This clay is very smooth and free from all gritty particles.

Q. Where is the cedar obtained?

A. In Florida.

Q. What are the first steps in preparing the cedar?

A. The trees are cut down, then the logs are rafted to the mill, where they are cut up into pieces called "bolts" and then into smaller strips.

Q. How is the cedar shipped from Florida?

A. In cases, in which are packed the small blocks, or "slats, somewhat longer than a pencil in length, and one-half the thickness of a pencil.

Q. How is the refined graphite made into pencil leads?

A. The graphite and clay are weighed in proper quantities to make the right grade, and then are ground together in water between millstones for several weeks.

Q. What is the next step?

A. The mixture is passed between rollers, and through dies, so that it will be thoroughly mixed, and it is then squeezed through a die the exact diameter of a pencil lead.



Q. What follows?

A. The leads are laid very carefully on boards to dry, and when dry are cut up into lengths of seven inches.

Q. State what is next done?

A. Then the leads are packed in boxes or crucibles and placed in ovens and subjected to a temperature of 2000° Fahrenheit for several hours.

Q. Why is this done?

A. It is done to extract all the moisture and to render them tough, strong and durable.

Q. How is the wood treated when it reaches the Dixon Pencil Factory?

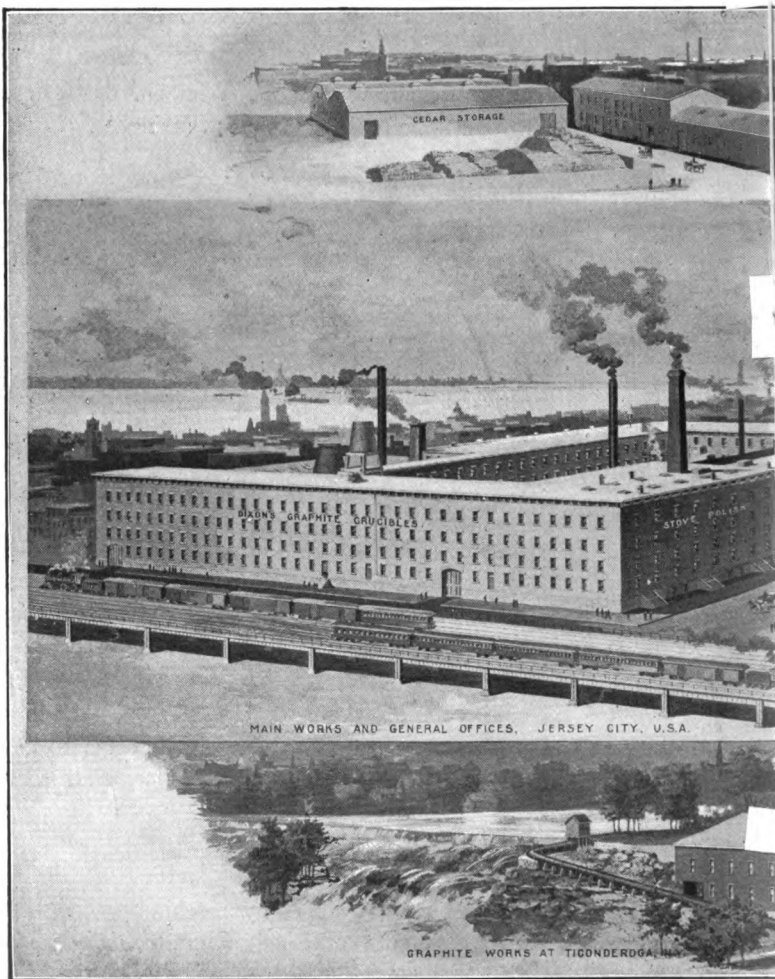
A. It is first carefully graded and sorted to see if there are any imperfections, then follows the dyeing process, in case the wood is to be colored for certain styles of pencils. Then the pitch and oil are extracted and lastly it is perfectly seasoned.

Q. What is the next step in the process of pencil making?

A. The grooves are cut in the cedar slat, in order to hold the leads, which are put in by hand, and then two slats are glued together.

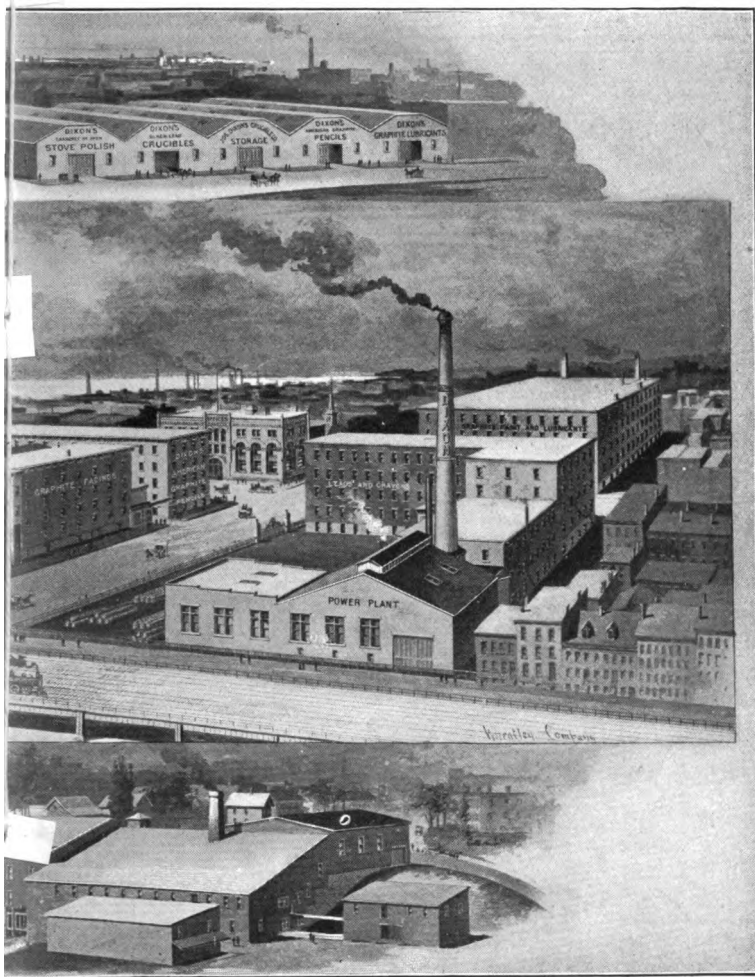
Q. What is next done?

A. The slat is then cut apart by machinery, and then the pencils are sandpapered, varnished, stamped, and packed in boxes, ready for delivery.

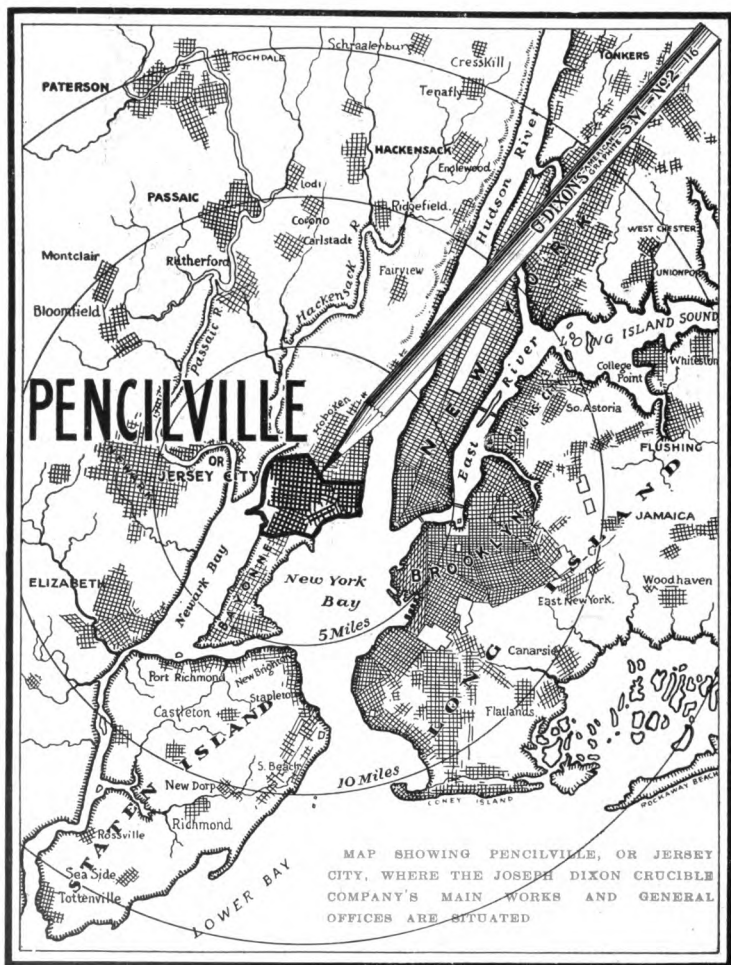


CENTRAL PICTURE: MAIN WORKS AND OFFICES, JERSEY CITY, U.S.A.

ALSO IN JERSEY CITY. LOWER PICTURE: GRAPHITE WORKS AT TICONDEROGA, N.Y.



ITY. UPPER PICTURE: STABLE AND STORAGE SHEDS,
RE: WORKS AT TICONDEROGA, N. Y.



Q. What addition is often made to the pencil?

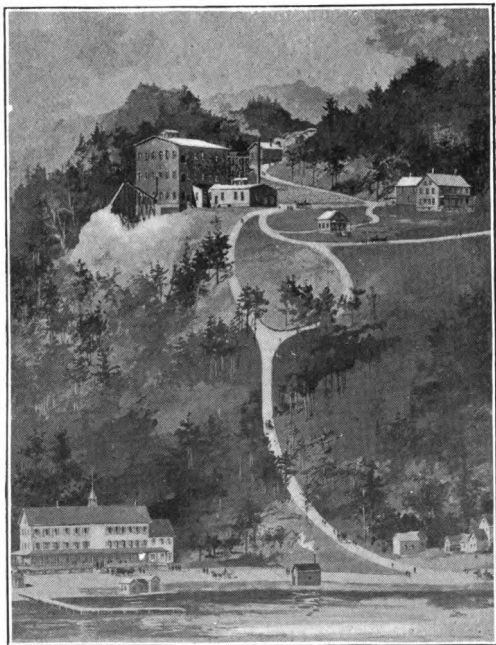
A. The rubber or eraser.

Q. What is rubber in its crude state?

A. A soft, flexible and very elastic substance derived from the milky sap of various tropical plants.

Q. Where is rubber obtained?

A. In India, Africa, Central America, Corea, Brazil, and Mexico.



GRAPHITE MINE AND MILL AT HAGUE, NEW YORK.

Q. How is rubber taken from the trees?

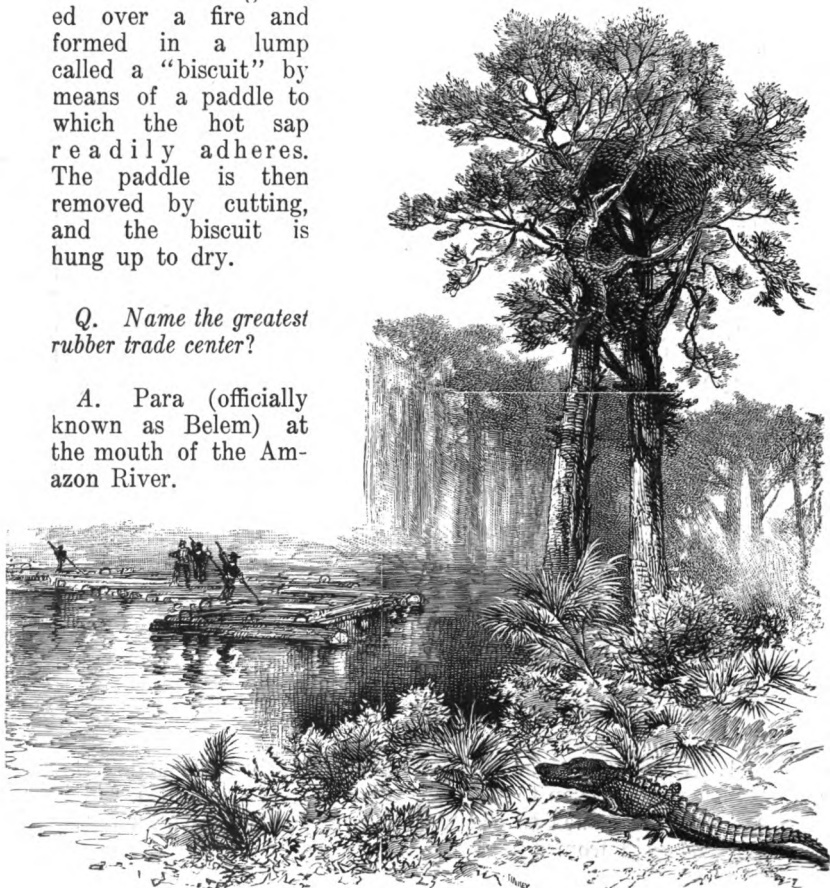
A. Hatchet cuts are made in the bark, thus permitting the thick cream-like sap to ooze into small cups of clay or tin, which have been attached to the tree. Seven pounds a season is the average yield from a vigorous tree.

Q. How is the rubber juice prepared for shipment?

A. It is coagulated over a fire and formed in a lump called a "biscuit" by means of a paddle to which the hot sap readily adheres. The paddle is then removed by cutting, and the biscuit is hung up to dry.

Q. Name the greatest rubber trade center?

A. Para (officially known as Belem) at the mouth of the Amazon River.



VIEW IN FLORIDA. WHERE CEDAR WOOD IS OBTAINED.

Q. Name some of the sorts of rubbers or erasers attached by the Joseph Dixon Crucible Company to their pencils?

A. The ordinary cap, the inserted plug, the inserted tablet, the hexagon head, the tablet in metal holder, the fluted holder in metal cap, the round rubber in metal cap, the wedge-shaped rubber and the corrugated rubber tip.

Q. Of what is the nickel tip made?

A. The nickel tip is made from sheet brass, and is drawn through dies of different diameter until the desired size is obtained, and then it is finally nickel plated.

Q. For what purpose are metal tips affixed to pencils?

A. To prevent the common habit of biting the pencil ends, also as an ornament and to hold the rubber eraser.

Q. What material is used to apply the lettering to lead pencils?

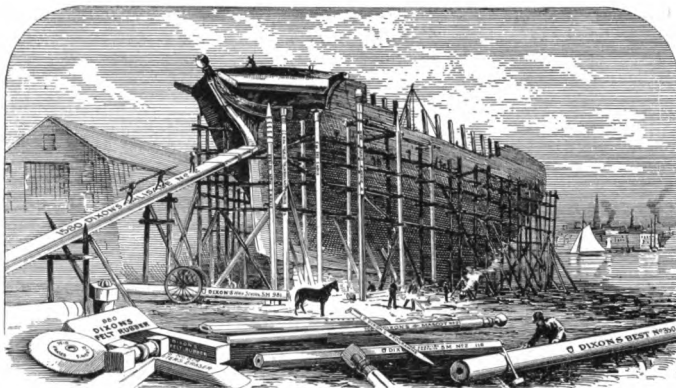
A. Gold-leaf, silver-leaf, aluminum and ink, and in some of the cheaper grades, a bronze powder.

Q. Name several kinds of finish that are applied to the wood composing the casing of lead pencils?

A. Besides the natural color of the cedar wood, there is the satin finish, also white, black, maroon, and tortoise, and all combinations of colors. (The satin finish being originated by the Joseph Dixon Crucible Company.)

Q. Name another article made by the Dixon Company that is being used more and more in the public schools of this country?

A. The Solid Colored Crayon, which is made in twenty different shades, and used in all schools where color is taught in connection with drawing.



SHIP YARD. EVEN HERE DIXON'S PENCILS ARE VERY USEFUL.

Q. Can you tell us something about these crayons?

A. They are composed of the best and finest china clay, combined with pure earth colors and pigments, and are manufactured the same as the pencil leads, by being thoroughly ground and mixed, and then compressed under very heavy hydraulic pressure. They are not, however, subjected to the baking process because they are mixed with wax.

Q. What are the two leading shapes of pencils?

A. Round and hexagon.

Q. What other shapes are manufactured?

A. Oval, conical, and beveled.

Q. Give examples of short length pencils?

A. The "Memorandum Book" and "Programme" pencils.

Q. Do pencils have leads of varying grades of hardness?

A. Yes, Dixon's American Graphite Pencils, for instance, are made in seven degrees of hardness.

Q. How are the grades of Dixon's American Graphite Pencils indicated?

A. By letters ranging from S. (soft) the softer kind, to V.H. (very hard), the harder kind.

Q. How are Dixon's American Graphite Artists' Pencils graded?

A. In eleven degrees of hardness, including those just mentioned, and having as extremes, V.V.S. (very, very soft), and V.V.V.H. (very, very, very hard).

Q. What is the diameter of the ordinary round pencil?

A. Slightly more than $\frac{1}{4}$ inch, though pencils made for note books, or other special purposes, have a much smaller diameter.



A LIGHTHOUSE. DIXON'S PENCILS KEEP ONE OFF THE ROCKS OF DISAPPOINTMENT.

Q. How many varieties of pencils do the Joseph Dixon Crucible Company carry in stock?

A. Over seven hundred (700) different kinds, grades, shapes, sizes and colors.

Q. What is the total number of pencils made by the Dixon Company in one year?

A. About 90,000,000.

Q. Give some idea of their total length?

A. If placed end to end in a continuous line they would reach three times across the continent of North America, from Boston to San Francisco, or a total length of 10,000 miles.

Q. About what is the value of the Gold used in stamping Dixon's Pencils?

A. About \$20,000.00 a year.

Q. From whom does the Dixon Company derive its name?

A. From Joseph Dixon, the founder of the company, who first made black lead crucibles or melting pots.

Q. When was the Joseph Dixon Crucible Company established?

A. It is the oldest and largest mining and manufacturing house in the graphite trade, having been established in 1827 and incorporated in 1868.

Q. Where are their works situated?

A. In Jersey City, or Pencilville, as it is termed in the maps in the book, 300 miles from its mines and 1200 miles from its cedar mills.

Q. Is the Joseph Dixon Crucible Company strictly an American firm?

A. Yes, they advertise an American industry, American capital, American brains, American labor, and American machinery.

Q. Do Dixon's pencils give satisfaction?

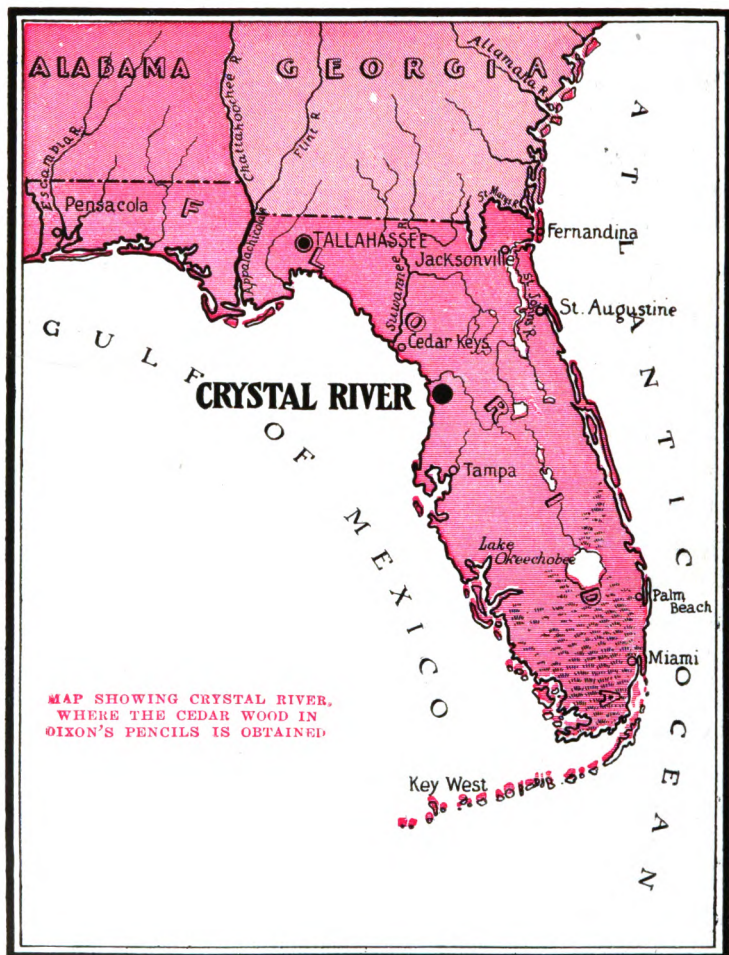
A. Yes, and the demand for them is continually increasing.

Q. Who use Dixon's Pencils?

A. Practically everybody connected in any way with the cause of education. They are indispensable in every school where careful attention is given to drawing either free hand or mechanical, they represent the highest art of the pencil manufacturer, and are a constant delight to all that use them.



IN WORK REQUIRING ACCURACY AND DISPATCH
DIXON'S PENCILS CAN BE DEPENDED UPON.







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